

CALIFORNIA

HIGHWAYS AND PUBLIC WORKS



SECTION OF OCEAN SHORE HIGHWAY NOW UNDER PROGRESSIVE
CONSTRUCTION BETWEEN SAN FRANCISCO AND SANTA CRUZ
(SEE ARTICLE IN THIS ISSUE)

SEPTEMBER
1941

CALIFORNIA HIGHWAYS AND PUBLIC WORKS

Official Journal of the Division of Highways, Department of Public Works, State of California

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Published for information of department members and citizens of California. Editors of newspapers and others are privileged to use matter contained herein. Cuts will be gladly loaned upon request. Address communications to California Highways and Public Works, P. O. Box 1499, Sacramento, California

Vol. 19

SEPTEMBER, 1941

No. 9

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U. S. 50 to be Kept Open All Winter

FOR the first time in its history as a trancontinental route dating from the pony express and pioneer stage coach days, U. S. Highway 50 will become an all-year highway as a result of the decision of the California Highway Commission in a meeting August 29th to provide funds for snow removal equipment and crews to keep the road open this winter over the Echo Summit and Meyer's grade bottleneck in the high Sierras of El Dorado County.

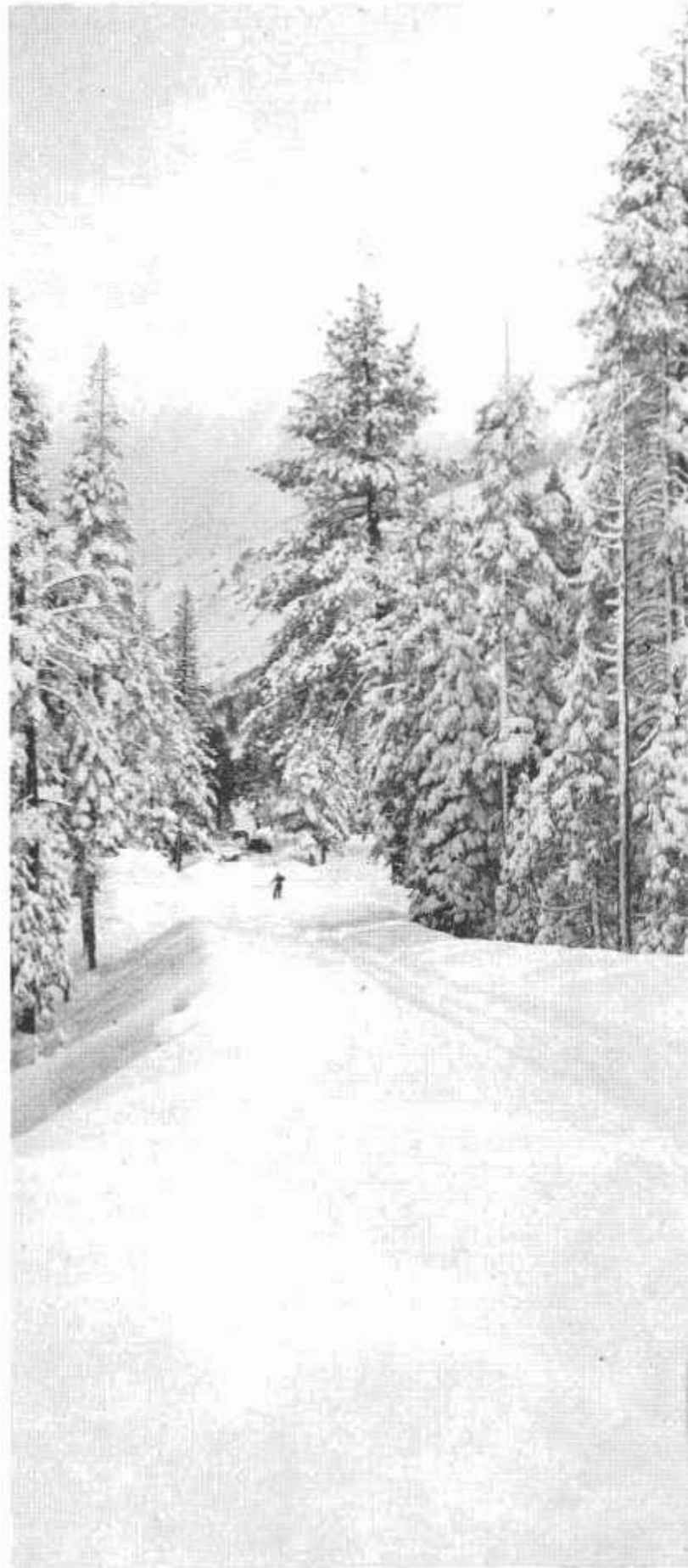
Immediately following the Commission's authorization the needed new snow plows were ordered by the Division of Highways and construction for housing crews and equipment is now under way.

U. S. 50 begins at San Francisco and extends to the Atlantic seaboard through Washington, D. C., and Annapolis. From Sacramento it gradually climbs via Folsom, Placerville and Kyburz to Echo Summit, elevation 7,394 feet and thence down Meyer's grade and along the southern and western shores of Lake Tahoe to Carson City, Nevada, and points East.

The 20 miles of highway through the high country and over the summit from Kyburz to Meyers has a total snow fall throughout the winter somewhat greater than that on Donner Summit which in severe winters exceeds 500 inches with an average snow pack of about nine feet. Because of the narrow old roadway through this section of National Forest and many hairpin turns on Meyer's grade east of the summit rendering the operation of big modern rotary snow plows impractical, the Division of Highways has heretofore only kept the road open to Kyburz and vicinity.

Two years ago the Federal Road Bureau began construction of a 2.3 mile unit of wider and safer highway on new alignment eliminating a number of the sharp turns and grades which was completed July, 1940, and work has already started on another unit to modernize the remainder of Meyer's grade to the lake valley.

At the meeting of the Highway Commission at Globin's Al Tahoe on August 29th, the matter of keeping the road open all through the winter was brought to the attention of the Commission by Director of Public Works Frank W. Clark who stated that Governor Culbert L. Olson urged that it be done for the benefit of the public of the entire State as well as for the interests of several thousand business men and residents of the southern Lake Tahoe region. He said that the Nevada Highway authorities had been keeping U. S. 50 open through the winter to the California State line and promised they would continue to do so and cooperate in every respect.



Scene on Echo Summit Highway, March 1941, before clearing



Push plow operating on Meyers grade in March, 1941, in effort to open road for automobile and truck traffic

URGED BY CIVIC BODIES

President John T. Nicholson and Committee Chairman Louis Bartlett of the Open Highway 50 Association explained the urgency of the situation from the viewpoint of the business men and residents of the Lake region and predicted the highway would develop a recreational patronage as large in winter as it is in summer. Other speakers included Senator H. E. Dillinger and Mayor Charles Molinari of Placerville; Judge Andrew Pierovich of Jackson; and representatives of the Redwood Empire Association, State Chamber of Commerce, cities of San Francisco, Oakland and Stockton and a number of other civic bodies.

Asked by Commissioner Nielsen what additional equipment and force the Division of Highways would need to keep the highway open, State Highway Engineer C. H. Purcell said two large type rotary snowplows and two four-wheel drive trucks and push plows would have to be purchased at once and quarters provided for a crew of 20 men to work day and night shifts.

Maintenance Engineer Tom Dennis

explained that four buildings would be necessary including a two-story bunkhouse, like the one on the Donner Summit station; a boiler house, a truck and plow garage and a storage house for gas, oil and supplies.

Mr. Dennis also stated that there would be times during the storm periods when the road would have to be closed while the equipment was at work owing to the narrowness of about 1.6 miles of the lower Meyer's grade where it would be impossible for traffic to pass. The same condition exists at times, he said, on Donner Summit during the heaviest storms.

SPEEDY ACTION NECESSARY

State Highway Engineer Purcell told the Commission that speedy action was necessary if the road was to be kept open this winter. He said:

"Orders must be placed at once with the factories in the middle west that make the snowplows and the matter of defense priorities must be considered. It will be necessary also to secure a site from the National Forest authorities for the housing and equipment buildings and we have

only about three months in which to do all this."

Mr. Purcell added that the cost of snow clearing operations would be about \$40,000 annually.

UNANIMOUS VOTE

When the motion was put by Chairman Larry Barrett, Commissioners Nielsen, Vaughn, Bozzani and Hitchcock voted unanimously to keep the highway open for winter travel and authorized the Division of Highways to make the necessary expenditures for crews, housing and equipment.

Immediately following the meeting State Highway Engineer Purcell got in touch with the snowplow builders and reported to Director Clark he expected the equipment to be delivered about December 1st.

A site for the location of the bunkhouse and other buildings has been secured from the forest authorities comprising five acres near Echo Summit and a crew was immediately put to work clearing the site of trees and underbrush. Lumber, cement and other materials for the four buildings were promptly delivered and the work of building the foundations and

framework is under way as this magazine goes to press.

LEGISLATURE PASSED BILL

The history of the Placerville-Lake Tahoe highway dates from 1854 when public agitation for a "post road or other road from the Sacramento Valley to the Missouri River by way of Great Salt Lake" resulted in mass meetings of citizens in San Francisco, Sacramento, Marysville, Placerville and other places and finally culminated in the Legislature passing a bill creating a commission consisting of the Governor, Secretary of State and Surveyor General to call for bids for the construction of a wagon road from the Valley of the Sacramento over the Sierra to Carson Valley at a cost not to exceed \$105,000.

Governor Bigler signed the measure April 28, 1855, but through an oversight the measure failed to appropriate any money for a survey of the proposed route.

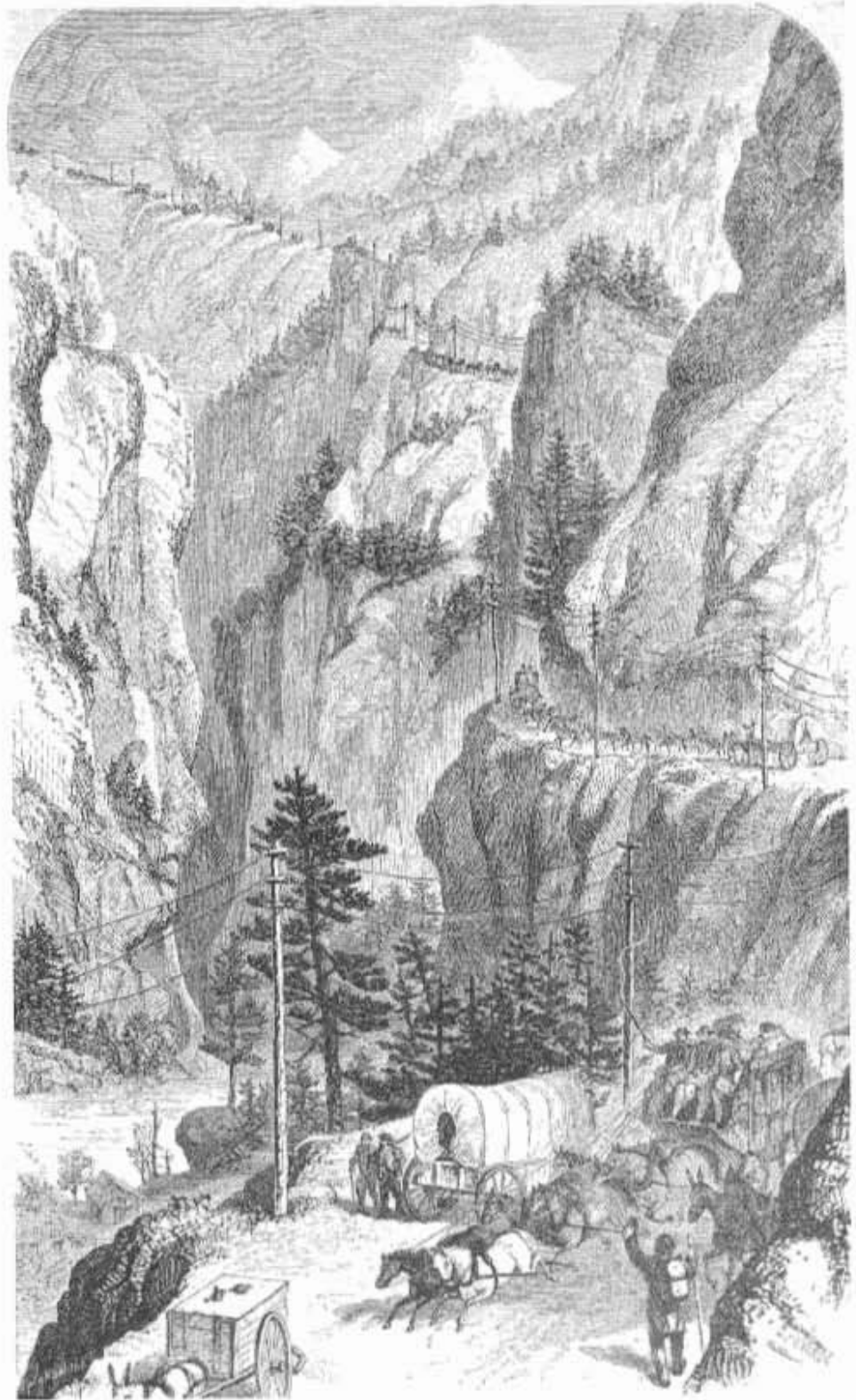
Surveyor General Marlette was obliged to advertise for public contributions to carry out the survey and commissioned State Senator Sherman Day, a well known engineer, to locate a route for the "Emigrant Road over the Sierra to Carson Valley." Day favored a route which today is the course of the State highway from Sacramento through Placerville to Lake Tahoe, then called Bigler Lake, thence into Carson Valley, Nevada.

When Day completed his survey and returned to Sacramento, Marlette set out with him to make a second survey and later directed George H. Goddard, father of Al Goddard of Sacramento to make a third investigation. Meanwhile, the State Controller refused to audit accounts under the Wagon Road Act and Marlette and those who had contributed for the surveys were out of pocket and were not repaid till April, 1857.

ROAD COMPLETED IN 1858

On May 11, 1857, representatives of Sacramento, El Dorado, and Yolo counties met and \$20,000 was subscribed by Sacramento, an equal amount by El Dorado, and \$10,000 by Yolo. The Day route was approved and finally in November, 1858, the road linking Sacramento and Placerville with Carson Valley was completed.

Lack of legislative support for the "Emigrant Wagon Road" as it was then called and opposition by interests involved in building the trans-continental railroad resulted in the



Old wood cut of the Emigrant Wagon Road in 1865 from Albert D. Richardson's book, "Beyond the Mississippi," published in 1867

road being taken over by private capital. Following the discovery of great silver deposits in Nevada and the resulting excessive traffic from Sacramento over the Sierra to the Comstock and other Nevada mines,

the route became a toll road and paid huge dividends to its operators. Years later in 1895, when the Legislature created the State Bureau of Highways, the old pioneer toll road was taken over by the State.

Shore Highway Link Abolishes 214 Curves, Opens More Fine Beaches to Public

By C. F. PRICE, Resident Engineer

A PORTION of the trail blazed by Gaspar de Portolo and his cavalcade of well over a half hundred men on his first land exploring expedition in 1769, has, after a period of 172 years, been transformed into a modern highway. A day's journey of 10 to 15 miles made by Portolo from one camp to the next can now be made in as many minutes.

A new link in the Ocean Shore Highway, State Sign Route No. 1, extending 8.8 miles from Pescadero to San Gregorio in San Mateo County,

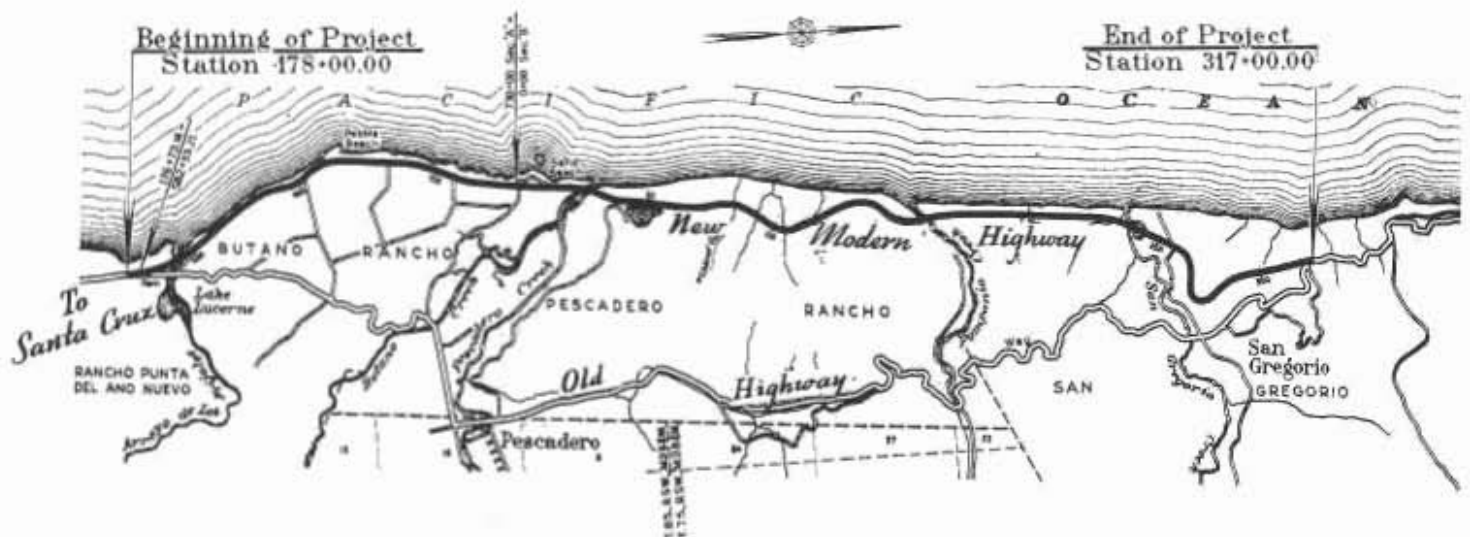
highway between San Francisco and Santa Cruz has a graded roadbed 36 feet wide surfaced with a two-lane plant mix pavement 22 feet wide and penetration oil shoulders laid on local select material and crusher run base.

It was necessary to construct two new bridges in connection with the highway project, one over Pescadero Creek and one over San Gregorio Creek. Both bridges are of continuous reinforced concrete girder design.

The Pescadero Creek Bridge consists of six 43 foot spans and two 33

The State Administration through the Division of Highways and the County of San Mateo working in conjunction have acquired title to miles of beautiful beaches, including the far-famed San Mateo County Pebble Beach, which have been made accessible for free public recreation.

The project was set up under two contracts, one for the highway work and one for the bridges; the highway work under District IV forces, and the bridges by the Bridge Department. N. M. Ball Sons of Berkeley



Heavy black line shows relocated Ocean Shore Highway between San Gregorio and Pescadero opening up miles of beaches to public

constructed over new right-of-way, has replaced 12 miles of narrow old road composed of a series of blind vertical and horizontal curves.

The old road, had a maximum grade of 8.8 per cent, 233 curves with a minimum radius of 50 feet and a total of 9219 degrees of curvature. The new highway has a maximum grade of 7 per cent, 19 curves with a minimum radius of 625 feet, and a total of 621 degrees of curvature.

This new unit in the progressive modernization of the Ocean Shore

foot 6 inch spans on concrete bents founded on steel piles varying in length from 25 to 50 feet below the concrete bent footings.

The San Gregorio Creek Bridge is made up of three 59 foot spans and two 44 foot spans on concrete bents also founded on steel piles varying in length from 25 to 40 feet below the concrete bent footings.

The completion of this section of highway opens to the public a new playground of sandy beaches for picnicking, bathing, and surf fishing.

were the contractors on the highway section, and the Campbell Construction Company of Sacramento was the bridge contractor.

The project was financed from funds budgeted by the California Highway Commission, including Federal Aid, and by Joint Highway District No. 9, composed of the San Francisco, San Mateo and Santa Cruz counties.

Dedicatory ceremonies were held on August 17th on Pescadero Creek

(Continued on page 16)



Top and bottom—New Ocean Shore Highway along beaches acquired for public. Center—Dedication parade at Pescadero Creek bridge led by Native Daughters drill team



Big power shovels, tractors, bulldozers, trucks and some of 2,000 men engaged in building Arroyo Seco extension through Elysian Park

Arroyo Seco Freeway Extension Becomes a \$4,000,000 Defense Highway Project

By ROBERT J. HATFIELD, Resident Engineer

CONSTRUCTION of the southerly extension of the Arroyo Seco Parkway, a certified, National Defense, WPA project sponsored by the State, is now in a spectacular stage of construction. This project, which began as a sorely needed civic improvement for the safety, convenience and economy of metropolitan Los Angeles, has now been classed as one of the roads forming a part of the National Strategic System of Roads, as designated by the War Department and entitled to priority in steel and cement materials for its completion.

With all the concentration of effort for defense; the achievement of the ultimate safety benefits which will result is in no way curtailed or delayed.

The project was described in the April, 1941, issue of *California High-*

ways and Public Works, and consists of the construction of a new four-lane roadway paralleling existing Figueroa Street for a distance of approximately 1.8 miles, and extends from the present end of the Arroyo Seco Parkway southerly toward the Los Angeles Civic Center.

The improvement involves the duplication of the existing \$700,000 Los Angeles River Viaduct; the removal of three-quarters of a million cubic yards of rock excavation, paving, storm drains and sanitary sewers, together with five grade separation structures, which are being performed by contract.

At present ten 110-horsepower tractors, equipped with 16 cubic yards capacity carryalls, bulldozers, sheepsfoot tampers or rooters, together with one 2½ cubic yard and

one 1½ cubic yard gas shovels, a fleet of 40 dump trucks, nine air compressors, and a half dozen concrete mixers, are operating during the day and continuing operations under flood lights during the night. All available space is now occupied with equipment or squads of workmen, who total 2,000 on the job. Rock cuts, which are in the very heart of Los Angeles, are being blasted, and material removed. Storm drains are being installed; bridges are being built, and rubble walls, of greater size than ever before seen in this area, are rapidly nearing completion.

The rubble walls are particularly worthy of special comment. Thirty thousand cubic yards of broken and discarded concrete sidewalks, curbs, gutters and pavement have been and



Top view shows existing Figueroa Street tunnel on right and construction at Solano Street grade separation with Park Lane bridge in background. At bottom—Extensive grading at site of Bishops Road grade separation and construction of dam that will also serve as highway embankment. Excess excavation material is used for dam which permits extension of city-owned reservoir



Extensive grading work and site of two overhead grade separation structures at intersection of Castelar and Figueroa Streets



Close up view of Park Lane grade separation under construction

which each day are affected by this construction, are finding their homeward and officeward paths little, if any, less convenient as every effort is made to prevent constriction of traffic in spite of the fact that a large amount of construction is constantly changing locations.

The completed project will have all of the safety features that were incorporated in the Arroyo Seco Parkway, and in addition will possess added safety features developed from experience and observation of the conduct of traffic on the Parkway.

FINE OFFICIAL COOPERATION

In the development of the safety features on this project, as well as the other details of design, we are in no small way indebted to City Engineer Lloyd Aldrich, and his deputies—Merrill Butler, Hugo Winter, and Louis Arnold, who have wholeheartedly and unstintingly cooperated in all details connected with the work.

In addition to the benefits to the traveling public and the fulfilling of the important defense demands, the project provides for the enlargement of a city-owned reservoir, by the utilization of excess roadway excavation for the construction of the dam, which will also serve the purpose of a highway embankment.

In keeping with the policy established on the Arroyo Seco Parkway,

(Continued on page 24)

are being accumulated for the purpose of providing aggregate for the construction of retaining walls, which are not only adding to the beauty of California's first freeway, but are, as well, providing economical substitute

for reinforced concrete retaining walls.

Through the cooperative efforts and planning of Los Angeles City Traffic Engineer Ralph T. Dorsey, and the city police force, the 45,000 vehicles

Traffic Count Up 10.8 per cent Over 1940; 11.2 per cent Increase In Last 7 Months

By C. H. PURCELL, State Highway Engineer

THE regular annual July traffic count taken on Sunday and Monday, July 13 and 14, shows an increase over the same counts for 1940 of 10.8 per cent. This is the largest percentage increase recorded in this annual traffic census of State highways since 1935 when travel took a decided upturn from the low years of 1933 and 1934.

The heavy percentage increase shown is even more impressive when it is noted that this brings the total cumulative increase over the same period of 1934 to more than 70 per cent.

It is also to be noted that, while these annual counts are direct comparisons between July periods, our regularly occupied monthly count key stations indicate that for the full seven months (January to July inclusive) of the present year the increase has been even somewhat higher than that recorded in the annual census, being approximately 11.2 per cent. Increases were shown by all the main groupings of routes, the smallest being in that group made up of routes ordinarily considered as "recreational."

As was to be expected, rather spectacular increases appear on certain routes in those areas largely influenced by heavy defense activities. Among these are Routes 14, 19, 22, 74, 78, and that portion of Route 56 in San Luis Obispo and Monterey Counties. While these instances are noteworthy because of the abnormal growth in traffic over the previous year, the general picture also shows a decided increase throughout the entire State highway system.

No change was made from the regular procedure of previous years in the manner of taking the count. Actual recording covers the 16-hour period from 6 a.m. to 10 p.m. for both Sunday and Monday. Traffic was segregated by hourly periods into the following vehicle classifications: Cali-

fornia passenger cars, out-of-state passenger cars, buses, light trucks, heavy trucks, trailers drawn by trucks, trailer coaches, and other passenger-car trailers.

These comparisons for the various route groups are as follows:

PER CENT GAIN OR LOSS FOR 1941 COUNT AS COMPARED WITH 1940

	Sunday	Monday
All Routes	+12.14	+10.47
Main North and South Routes	+11.87	+9.53
Interstate Connections	+15.44	+11.91
Laterals Between Inland and Coast	+15.87	+14.48
Recreational Routes	+5.76	+6.84

The gain or loss of traffic volume for State Highway Routes 1 to 80 inclusive, which constitute the basis for the foregoing summary, is shown in the following tabulation:

Route	Termini	1941 Per cent gain or loss			
		Sunday Gain	Sunday Loss	Monday Gain	Monday Loss
1.	Sausalito-Oregon Line	1.07		3.63	
2.	Mexico Line-San Francisco	13.84	11.34		
3.	Sacramento-Oregon Line	6.31		2.71	
4.	Los Angeles-Sacramento	11.37		7.86	
5.	Santa Cruz-Jc. Rt. 65 near Mokelumne Hill	9.05		2.94	
6.	Napa-Sacramento via Winters	4.82		7.54	
7.	Crockett-Red Bluff	26.33		26.02	
8.	Ignacio-Cordelia via Napa	16.10		16.91	
9.	Rt. 2 near Montalvo-San Bernardino	14.03		10.25	
10.	Rt. 2 at San Lucas-Sequoia National Park	6.51		2.61	
11.	Rt. 75 near Antioch-Nevada Line via Placerville	12.79		18.08	
12.	San Diego-El Centro	28.65		31.40	
13.	Rt. 4 at Salida-Rt. 23 at Sonora Jc.	1.32		4.98	
14.	Albany-Martinez	44.00		49.08	
15.	Rt. 1 near Calpella-Rt. 37 near Cisco	1.47		6.20	
16.	Hopland-Lakeport	16.40		19.53	
17.	Rt. 3 at Roseville-Rt. 15, Nevada City	2.82		5.86	
18.	Rt. 4 at Merced-Rt. 40 near Yosemite	4.02		7.84	
19.	Rt. 2 at Fullerton-Rt. 26 at Beaumont	35.04		30.43	
20.	Rt. 1 near Arcata-Rt. 83 at Park Boundary	5.04		10.50	
21.	Rt. 3 near Richvale-Rt. 29 near Chilcoet via Quincy	0.78	15.98		
22.	Rt. 56, Castroville-Rt. 29 via Hollister	36.00		40.55	
23.	Rt. 4 at Tunnel Sta.-Rt. 11, Alpine Jc.	6.55		5.09	
24.	Rt. 4 near Lodi-Nevada State Line	4.45	7.89		
25.	Rt. 37 at Colfax-Rt. 83 near Sattley	20.53		12.99	
26.	Los Angeles-Mexico via San Bernardino	14.30		5.27	
27.	El Centro-Yuma	21.99		10.20	
28.	Redding-Nevada Line via Alturas	1.30	0.71		
29.	Peanut-Nevada Line near Purdy's	7.54		9.95	
31.	Colton-Nevada State Line	19.98		26.56	
32.	Rt. 56, Watsonville-Rt. 4 near Califa	13.12		11.96	
33.	Rt. 56 near Cambria-Rt. 4 near Famosa	37.93		23.00	

Route	Termini	1941 Per cent gain or loss			
		Sunday Gain	Sunday Loss	Monday Gain	Monday Loss
34.	Rt. 4 at Galt-Rt. 23 at Pickett's Jc.		5.23		7.05
35.	Rt. 1 at Alton-Rt. 20 at Douglas City	4.87		29.18	
37.	Auburn-Truckee	3.45			6.07
38.	Rt. 11 at Mays-Nevada Line via Truckee River	4.19			5.34
39.	Rt. 38 at Tahoe City-Nevada State Line		3.80		3.14
40.	Rt. 13 near Montezuma-Rt. 76 at Benton	15.09			5.32
41.	Rt. 5 near Tracy-Kings River Canyon via Fresno	22.04			10.00
42.	Redwood Park-Los Gatos	3.76			7.75
43.	Rt. 60 at Newport Beach-Rt. 31 near Victorville	1.90		2.00	
44.	Boulder Creek-Redwood Park		2.06		1.36
45.	Rt. 7, Willows-Rt. 3 near Biggs	12.08			27.99
46.	Rt. 1 near Klamath-Rt. 3 near Cray		15.75		4.26
47.	Rt. 7, Orland-Rt. 29 near Morgan	1.74			1.49
48.	Rt. 1 N. of Cloverdale-Rt. 56 near Albion	3.82			13.48
49.	Napa-Rt. 15 near Sweet Hollow Summit	16.19			1.58
50.	Sacramento-Rt. 15 near Wilbur Springs	17.88			20.08
51.	Rt. 8 at Schellville-Sebastopol	14.41			2.08
52.	Alto-Tiburon		8.93		23.43
53.	Rt. 7 at Fairfield-Rt. 4 at Lodi via Rio Vista	21.91			15.13
54.	Rt. 11 at Perkins-Rt. 65 at Central House	13.60			19.37
55.	Rt. 5 near Glenwood-San Francisco	4.12			12.77
56.	Rt. 2 at Las Cruces-Rt. 1 near Fernbridge	21.09			17.35
57.	Rt. 2 near Santa Maria-Rt. 23 near Freeman via Bakersfield	9.96			10.42
58.	Rt. 2 near Santa Margarita-Arizona Line near Topock via Mohave and Barstow	23.31			16.00
59.	Rt. 4 at Gorman-Rt. 43 at Lake Arrowhead		1.70		3.65
60.	Rt. 2 at Serra-Rt. 2 at El Rio	0.88			7.37
61.	Rt. 4 S. of Glendale-Rt. 59 near Phelan	21.07			13.92
62.	Rt. 171 at Northam-Rt. 61 near Crystal Lake	4.31			4.05
63.	Big Pine-Nevada State Line	23.27			46.92
64.	Rt. 2 at San Juan Capistrano-Blythe	11.35			9.32
65.	Rt. 18 near Mariposa-Auburn	10.79			0.64
66.	Rt. 5 near Mossdale-Rt. 13 near Oakdale		3.23		1.60
67.	Pajaro River-Rt. 2 near San Benito River Bridge		6.24		8.17
68.	San Jose-San Francisco	6.92			6.57
69.	Rt. 5 at Warm Springs-Rt. 1, San Rafael	18.83			21.83
70.	Ukiah-Talmage	52.41			29.14
71.	Crescent City-Oregon Line		5.55		6.30
72.	Weed-Oregon Line	45.19			65.30
73.	Rt. 29 near Johnstonville-Oregon Line	21.81			7.37
74.	Napa Wye-Cordelia via Valjejo and Benicia	55.20			78.52
75.	Oakland-Jc. Rt. 65 at Alta-ville	21.73			7.09
76.	Rt. 125 at Shaw Ave.-Nevada State Line near Benton		12.99		2.36
77.	San Diego-Los Angeles via Pomona	31.50			21.24
78.	Rt. 12 near Destanso-Rt. 19 near March Field	46.99			37.04
79.	Rt. 2, Ventura-Rt. 4 at Castaic		2.38		5.69
80.	Rt. 51, Rincon Creek-Rt. 2 near Zaca		0.24		9.11

Governor Olson Dedicates and Opens California Institution for Men at Chino

By ANSON BOYD, State Architect

LOCKING the wire mesh gates to the 2600 acres of the highly publicized, harassed, and investigated "Prison without walls" at Chino, California, the new California Institution for Men has accepted its quarters from the Department of Public Works, turned its back upon the stormy history of its construction era, and entered upon the most scientific penal program of rehabilitation in the country.

Six years ago this project was launched with a \$400,000 appropriation to purchase land for a prison for "the rehabilitation" of "first offenders." Six hundred seventy-one thousand dollars was spent for land. The history of this project is written in a 122 page report of the Joint Legislative Fact-Finding Committee, which traced the steps leading to the financial collapse of the program, the cancelling of the contract for private architectural services at the request of Governor Olson by Legislative action, the ousting of the old Prison Board by action of the chief executive, and the rearrangement of the remaining balances, totaling approximately 9 per cent of the original project budget, which were left to return this institution to its originally conceived purpose.

40 STRUCTURES PROGRAMMED

On March 31, 1939, a Legislative act became effective cancelling the contract between a Los Angeles firm of architects employed by the old Prison Board and placing the project under the jurisdiction of the Department of Public Works with orders to erect the works as drawn.

The entire project was rearranged financially to fit the depleted funds remaining after the PWA declined consideration of an \$806,000 grant application and \$1,007,000 had been spent with no major buildings yet built.

The major buildings shown in the

accompanying photographs are those finally constructed out of a total original project calling for more than 40 structures, programmed to house 1140 men. As received by the Department of Public Works, there was space for 236 men. By salvage methods this capacity was increased by the Division of Architecture to 440 men.

The plans for these buildings were originally drawn by the architects employed by the old Prison Board and were completed with certain internal rearrangements by the Division of Architecture to conform to the policy of the newly appointed Prison Board which has determined that this Institution shall be developed and operated in accordance with the original Legislative statute calling for a "rehabilitation" Institution.

The entire institution lies about two miles south of the town of Chino in Los Angeles County, Southern California, and is in the center of one of the two 1300 acre blocks making up its lands. The block occupied by the buildings is surrounded by a cyclone type chain link fence with barbed wire guard along its upper member. There are mushroom type guard posts surrounding the entire plot, which under the present policy of operation are not in use.

The Administration Building faces the main entrance road and looks south toward a range of low hills below Chino, over the acreage which is to be used for farming. This Administration Building is a 3-story, reinforced concrete structure, built in large part by the Works Progress Administration together with civil service employees of the State, and a number of individual contracts.

Its first floor houses the warden's office and clerical staff to the left of the entrance; the visitors' section, supervisors' dining room and commissary to the right. On the east half of the second floor are clerical offices

and board rooms. The remainder of the second and third floors provide housing for unmarried supervisors.

The Administration Building is huge and monumental in design, is air-conditioned throughout, as are the other structures, and contains the most elaborate equipment for the handling of prisoners in a maximum security institution.

SECURITY FEATURES UNUSED

Across the rear of the Administration Building, facing what is now the recreation yard, is a 20 foot reinforced concrete wall surmounted by guards' walks and bullet proof gun towers. The remainder of this maximum security wall, estimated at \$140,000, was not erected.

These "security" features are not in use. The interior of this building has been rearranged by the Division of Architecture, reducing materially the luxurious quarters proposed for the Prison Board and including vitally needed facilities which had been omitted by the shrinkage of the funds.

Immediately to the northwest of the Administration Building is the Observation Cell Unit, a reinforced maximum security disciplinary structure. In it are the much publicized cell doors which were, however, manufactured by the Consolidated Steel Company of Los Angeles. This building and the other major units, excepting the Administration Building, were built under general contracts.

INTERIOR REARRANGED

With the accession of the new Prison Board to office, it was possible for the Department of Public Works to rearrange the interior of this building, installing a second floor for open dormitory housing of inmates thereby considerably increasing the capacity of the institution and reducing the disciplinary cells accordingly, it being contemplated that disciplin-

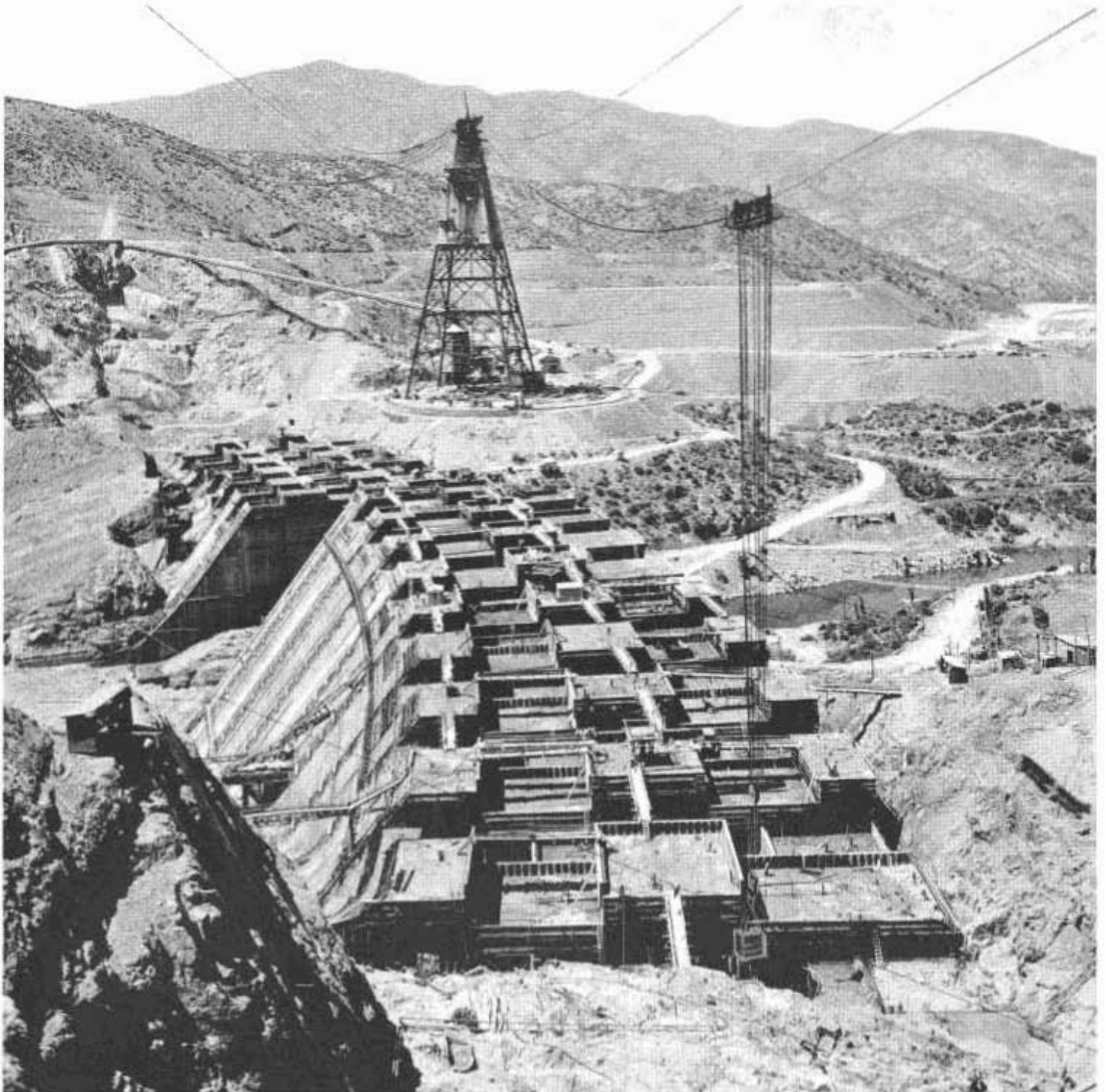
(Continued on page 16)



Chino institution buildings. No. 1—Observation cell block, a two-story building with 52 single rooms on first floor and 4 dormitories on second floor housing 44 beds each. 2—Mess hall, a reinforced concrete structure seating 1,200 inmates. Also contains kitchens and storerooms. 3—Westerly dormitory, a 2-story structure housing 136 men in single rooms and recreation rooms on each floor. 4—Barber shop, laundry and bath house containing shower rooms, dressing rooms and 12 barber chairs

Construction Methods Vary at Two C

A GIANT cable system, consisting of a head tower where control works are located and seven tail towers, is being used to span the Sacramento River Canyon for pouring of concrete at Shasta Dam. Concrete buckets suspended from the cables carry 8 cubic yards per trip. On September 1st, Shasta Dam was 57 per cent complete with approximately 1,770,000 yards of concrete placed since the first bucket was poured in July 1940.



This view of Shasta Dam shows the progress of concrete pouring made to date by the cable system

Great Dams of Central Valley Project

AT Friant Dam, a trestle system is being used to pour concrete. Instead of concrete buckets being swung across the canyon from cables, small diesel-electric cars carry the concrete buckets out on a trestle, from which they are picked up by huge cranes and lowered onto the forms. Bucket capacity is 4 cubic yards. On September 1st, Friant Dam was 83 per cent complete with approximately 1,626,000 yards of concrete placed.



This view of Friant Dam shows the progress of concrete pouring made to date by the trestle and crane system



Ground cover plantings have proved unsatisfactory protection when planted on sterile slopes



A sandy highly erodable slope left in good condition to retain top soil protective cover

Importance of Flatter Cut Slopes in Stabilization by Vegetative Processes

By H. DANA BOWERS, Landscape Engineer

THE practicability of stabilizing slopes by natural vegetative processes is slowly but steadily becoming recognized as a desirable item of highway construction.

Naturally there exist differences of opinion among engineers as to just how necessary this item actually is, particularly regarding the merits of stabilization by natural rather than artificial means.

Regardless of opinion the fact re-

mains that too little attention has been given to that phase of highway construction pertaining to the erosion of cut slopes, and that lack of attention has, and still is, by excessive repair costs, reducing the amount of funds available for highway construction.

Many dollars are uselessly expended annually on miles of highway loading and hauling eroded material from the base of cut slopes. Many such

slopes are existant solely because of design calling for a steep slope ratio regardless of the height of the cut. It is these low cut slopes, hardly noticeable in passing and seemingly unworthy of any consideration, infinitesimal in themselves, that boost the cost of maintenance to surprising figures, considering the highway system as a whole.

Nature performs miracles in self-preservation if given an even break



Erosion control by artificial means such as oiling is always subject to failure and demands constant repair



Finished 1½:1 slope too smooth to retain lumpy adobe top soil. Header-board above plant mix ditch line to hold cover soil



Lumps or granular particles can not be expected to stick to a 1½:1 smooth surface. Roughening is necessary



Gravel slope on which erosion was prevented by top soil cover damaged by pedestrians climbing up and down

and with a little encouragement can be made to work to our advantage without charge.

However, the result of the fast-acting force of gravity, accentuated by steep slopes, is more than the slow processes of revegetation can cope with. Therefore, in order to take advantage of this "free labor," we must furnish a reasonable opportunity for the natural establishment of protective growth.

The flattening of slopes alone is not sufficient to reduce erosion particularly in friable or highly erodable soils. Increased slope exposure results in increased erosion unless humus is present. Once erosion gulleys are formed, very little opportunity remains for natural vegetation to gain a foothold since all naturally disseminated seeds fall in these gulleys and are washed away by the first rains.

By blanketing slopes with topsoil,

the humus so essential to erosion control is supplied. Soil which contains no humus is of no value from an erosion standpoint other than to create a bed wherein seeds will more quickly sprout. In this case humus and usually fertilizer must be added.

Like all activities dealing with the natural elements, no definite rule can be laid down which will apply to all conditions alike. Practically every project will have a variance in soil type that may or may not call for some change in erosion control procedure.

The general sequence of operations in blanketing sterile slopes with topsoil is as follows:

1. In designing the project slopes must be made as flat as possible. The steepest slope upon which topsoil can be economically held is 1½:1. However, ease of application and effectiveness of control increase directly as the slope is flattened.

2. Determine area of slope surface and compute quantity of topsoil required to provide a cover of 6 inches minimum thickness.

3. Remove the topsoil layer containing humus from within the excavation limits and stockpile or windrow this soil outside of the slope stakes.

4. Excavate the cut in such manner as to leave a fairly rough surface. Irregularities up to 6 inches from a plane surface are acceptable. Scraper excavation will leave horizontal grooves and ridges which act as terraces to hold the topsoil. Smooth bladed surfaces, especially on a 1½:1 slope will not hold dry or lumpy topsoil, without water or support.

5. Immediately following excavation of each particular slope the topsoil blanket should be applied. Delaying this operation allows loose subsoil to filter down the slope and fill the

(Continued on page 24)



Cut slopes, 1½:1 that were blanketed with 6 inches of top soil as part of contract



Cut slopes with transition at the ends of cuts and protected with top soil present a natural appearance



Administration Building, a 3-story reinforced concrete structure housing Warden's office, clerical staff, visitors' section and Board rooms

Governor Olson Opens Chino Institution For Men

(Continued from page 19)

any cases will be transferred to other State prisons.

North of the Observation Cell Unit is the Westerly Dormitory, a medium security cell block housing 136 men, a reinforced concrete, 2-story structure. The entrance, in accordance with the original plans under which the building was erected, is controlled by a guards' booth with customary gun ports. On the first and second floors are dayrooms for recreation and each wing of the building contains single room cells closed with steel cell doors.

Beyond the dormitory building are the laundry and the kitchen and mess hall buildings. The laundry provides shower facilities for the inmates as well as laundry equipment sufficient for an institution of the size proposed for this group, and in the mess hall and kitchen unit, as illustrated in the photograph, seating is available for 1200 inmates in the present mess hall and the kitchen is capable of serving this number as well as an additional mess hall of equal size. A restudy of the entire feeding system in the offices of the Division of Architecture, has permanently eliminated the necessity for this second mess hall and its consequent capital outlay.

Inasmuch as no storage or warehouse facilities capable of housing more than a week's supply of staples

was included in the plans at the time this project came into the jurisdiction of the Department of Public Works, a new warehouse is now being built from savings in the original funds to accomplish this purpose. The warehouse is immediately north of the kitchen.

On the grounds, to the northeast of the mess hall building, is a powerhouse and electric substation of sufficient capacity to care for this institution for a number of years to come.

At the extreme northeast corner of the 1300 acre plot is a water distribution system with elevated tank and storage reservoirs, and in the southeast corner is an adequate sewage disposal plant erected by the Works Progress Administration under State sponsorship.

Under construction at the present time and not illustrated, is an institutional hospital adequate for the needs of this group of buildings for several years. It is being built at approximately 60 per cent of the cost originally proposed and out of savings due to the rearrangement of funds available.

The institution was dedicated by Governor Olson and occupied for the uses for which it was intended within the original time schedule and within the funds originally appropriated.

It is probable that the continued development of this "rehabilitation" institution will approach its ultimate growth within the funds appropriated for the current biennium.

Shore Highway Link Abolishes 214 Curves

(Continued from page 4)

Bridge. State, County, and Joint Highway District officials took part in the ceremonies at which Deputy Director of Public Works Morgan Keaton represented Governor Olson and Director Frank W. Clark. A short program of speech making preceded a barbecue served in Pescadero under the auspices of the Pescadero Junior Chamber of Commerce.

Progress in construction of the Ocean Shore Highway has advanced steadily under the cooperative efforts of the State and the Joint Highway District.

The highway has been constructed to modern standards between a connection with Junipero Serra Boulevard at the south city limits of San Francisco to Moss Beach via Thornton, where it crosses the Skyline Boulevard, Edgemar and Rockaway Beach.

Improvement in Santa Cruz County has been accomplished through two contracts between one and one-half miles south of Davenport and Waddell Creek.

The most spectacular project was the elimination of the notorious Pedro Mountain grade by the construction of the six-mile section between Farallone City and Rockaway Beach.



Views of rock and concrete jetty at Jenner that is keeping open Russian River channel to ocean

Jenner Jetty Defies Ocean's Storms

FOR the first time since the old steel trestle and rock retaining wall at the mouth of the Russian River were battered to pieces by Pacific storms nearly 10 years ago, the mouth of the river has been kept open throughout the past winter and summer.

This has been brought about by construction of Jenner Jetty, a concrete-capped rock structure extending 600 feet out into the sea from the mouth of the Russian River.

The jetty stands as a tribute to the skill of engineers in the Division of Water Resources, State Department of Public Works, who planned and supervised the construction and to the cooperation of sportsmen and adjacent counties whose money provided the funds.

The State Fish and Game Commission appropriated \$55,000 from its game license fees. Sonoma County

contributed \$5,500, Mendocino County \$550 and sportsmen's organizations provided approximately \$4,500 worth of materials.

The major portion of the jetty was installed last fall and withstood the battering of one of the heaviest winters the Pacific has had in years. Last Spring work was resumed and the jetty was completed late in June.

CHANNEL KEPT OPEN

Meanwhile sportsmen and others interested in the recreational possibilities of the Russian River have watched with interest to see whether the bar which has closed the mouth of the river twice each year would reform. A channel was opened through the bar in October last year and has not since closed. The channel is gradually shifting to the point engineers anticipated due to construction of the jetty.

The rock structure of the jetty was built with three grades of heavy rock quarried especially for the purpose. Class A rock, amounting to 3,560 tons, was in pieces ranging from 5 to 16 tons each, with at least 50% over 7 tons. Class B rock, amounting to 5,638 tons, was in pieces ranging from 1 to 5 tons each, with over 50% weighing more than 3 tons. Class C rock, amounting to 1,060 tons of quarry run weighing up to 1 ton, with 30% not less than 1 ton.

SOLID CONCRETE CAP

These huge rocks were bound together with infiltrated concrete and a solid concrete cap and side walls, with a minimum thickness of two feet. The structure is 12 feet wide at the top and 25 feet wide at the bottom.

The construction contract, awarded to the Basalt Rock Company of Napa, was for \$47,000. Engineering sur-

(Continued on page 24)

Highway Relocation Near Jamestown Cuts Through Vein of the Mother Lode

By C. J. TEMBY, District Office Engineer

THE recently completed 1.04 miles of State highway between Jamestown and a point one mile southerly was officially opened and dedicated on August 31, 1941, by the Jamestown Boosters Club, in conjunction with the Tuolumne County Highway Committee of the State Chamber of Commerce.

This new improvement crosses the Mother Lode south of Jamestown, commonly referred to as "Jimtown," in the vicinity where gold was first discovered in Tuolumne County, at which point the Chambers of Commerce of Jamestown and Sonora have erected a monument dedicated to the pioneers and commemorating the event.

The north end of the improvement connects with the main street of Jamestown, a picturesque mining town, typical of those to be found in the Mother Lode country. To this day, some of the original buildings will be found there. On the west side of the new right of way and immediately adjacent thereto, stands an old wooden house constructed of timber brought around Cape Horn.

The Harvard Mine is located near the south end of the new work. In latter years this mine has been reopened for development and exploration purposes. Other mines in this general vicinity have been reopened.

The highway improvement replaces a portion of the old road of inferior design that included several curves having radii varying from 110 to 1,900 feet and grades that were short and rolling with very restricted sight distances.

The old road was on narrow traveled way, which together with the poor alignment and grades was inadequate for the volume and speed of traffic now using this portion of the State highway. Traffic counts indicate approximately 3,000 vehicles using this portion of the highway daily, of which more than 15 per cent are trucks.

The average speed of traffic as recorded by official count is 46 miles per hour, with 85 per cent of the traffic indicating a speed of 52 miles per hour. The accident record for 1940 indicates 1.3 accidents per mile,

and 1.7 accidents per million vehicle miles.

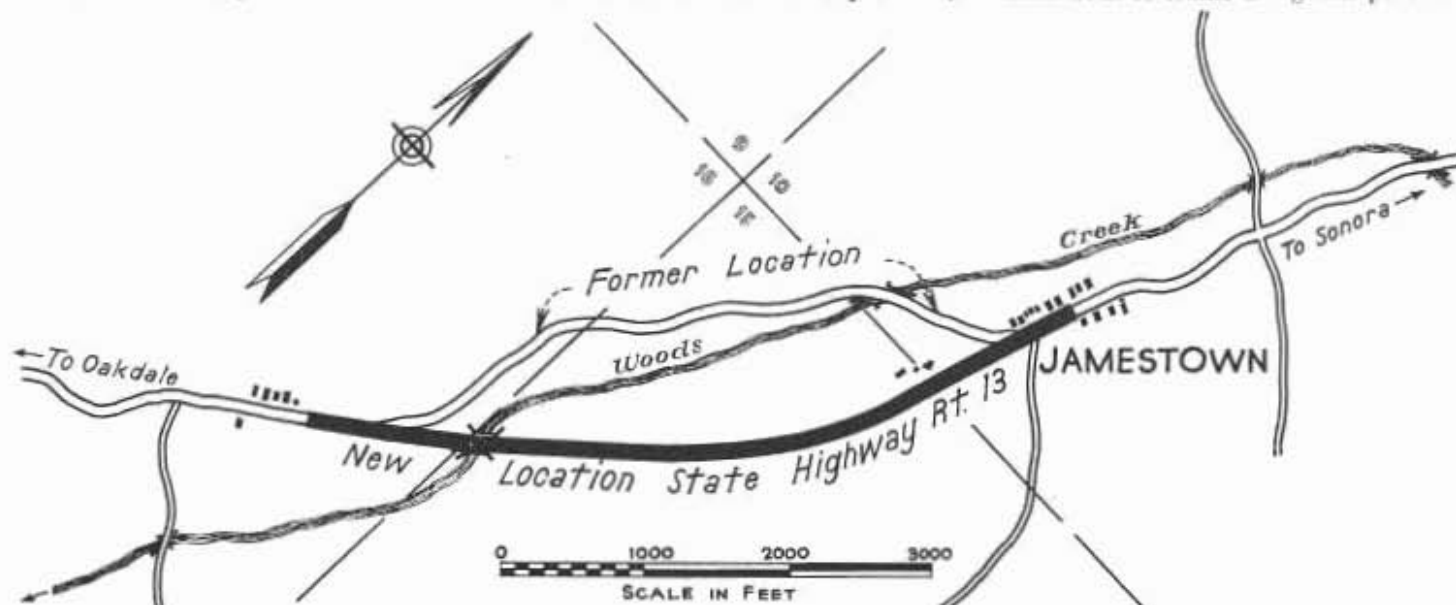
The new work provided for the construction of a 26-foot roadbed with 22-foot traveled way, consisting of 0.21-foot road-mixed surfacing on 0.33-foot thickness of gravel base on about one foot of imported borrow.

The alignment on the improved project consists of three long tangents separated by two curves of 3,000 and 5,000 feet radii, respectively. The grades are long, rolling grades, with a maximum gradient of 6.7 per cent separated by long vertical curves.

The following table presents the comparative alignment data.

	Existing	New
Number of curves existing	15	2
Maximum radius	1,900 feet	5,000 feet
Minimum radius	110 feet	3,000 feet
Total curvature	307 degrees 12 min.	37 degrees 03 min.
Net length	5,850 feet	5,515 feet

The old road crossed Woods Creek with a concrete bridge on a skewed angle crossing. The bridge was 21 feet wide and 60 feet long. The angle of the bridge crossing with sharp curves at each end was very hazardous to traffic using this portion





of the road. There has been constructed on the realigned route a new three-span, reinforced-concrete-girder bridge, 130 feet in length, consisting of a center span 50 feet long and two approach spans on each side of the center span, each 40 feet long.

The work involved approximately 36,000 cubic yards of roadway excavation; 6,000 tons of imported borrow; 4,000 tons of gravel base; 2,500 tons of mineral aggregate (surfacing); 17,000 square yards of mixing and compacting surfacing.

Construction was completed by the firm of Dan Caputo from San Jose, at a cost of approximately \$55,000.



Top—Section of realigned highway into Jamestown. Center—Mother Lode vein exposed by highway cut. Bottom—Gold discovery monument near highway

New Divided Highway Cut-off Between La Mesa and El Cajon in San Diego

By EARL E. SORENSON, District Construction Engineer

SAN DIEGO, located in the southwestern corner of the United States, is bounded on the west by the Pacific Ocean, and on the south by Baja California, Mexico. Access over domestic highways is therefore confined to the north and east, and gateways in these two directions become increasingly important.

The northern entrance, U. S. 101, improved several years ago, to what was then considered adequate standards, has been made obsolete by the rapid increase of 50 per cent in population in the last year, and its reconstruction is now being planned.

The easterly approach over U. S. Highway 80, while not so heavily traveled as U. S. 101, is nevertheless carrying such a rapidly increasing load that the elimination of bottlenecks is imperative.

CROSSES THE CONTINENT

Known as the "Broadway of America," this route starts at the most southwesterly point in the United States on the Pacific, the Old Spanish Lighthouse on Point Loma, and extends across California, spans the Colorado River at Yuma, crosses Arizona, New Mexico, Texas, and on through the eastern states to the Atlantic. It is the most southerly modern highway paralleling the Mexican Border, and as such, assumes strategic military importance.

In addition to handling an ever-increasing flow of tourist traffic from the east to San Diego, it also taps the fertile Imperial Valley, with a potential area of productive soil in excess of one million acres. Intensive farming of even larger areas in this valley awaits only the construction of additional canals to make the full use of Colorado River water available.

Across the 100 miles separating San Diego from this "Garden Spot," there is trucked annually an enormous tonnage of dairy products,

grain, alfalfa, perishable vegetables and fruits, and building materials.

The two most serious bottlenecks over this distance were the old Mountain Springs Grade, now being reconstructed, and the highway through La Mesa, which is now superseded by the new La Mesa Cut-off, completed a short time ago.

Formerly traffic was compelled to travel through La Mesa over residential and business streets, on sharply rolling grades, and on to El Cajon over a narrow road confined on one side by the San Diego and Arizona Eastern Railway, and on the other by Mt. Helix. This section, already overcrowded by local traffic, constituted not only a hazard, but a serious delay to fast, through traffic.

The improvement starts at West La Mesa and extends to the City of El Cajon, a distance of approximately four miles. This new highway bypasses La Mesa to the north, and intercepts the old alignment at Grossmont, from whence it has been reconstructed and widened the balance of the distance to El Cajon.

4-LANE DIVIDED HIGHWAY

Four lanes were constructed, separated either by curbs or by a variation in grade, the latter method being employed at locations where the old road could be salvaged, but where a higher standard of gradient was advisable on the new portions.

The major portion of the excavation was through, what geologists inform us was once, the bed of the Colorado River. Ages ago, before the formation of the coastal range, extending through this section, the Colorado River crossing San Diego emptied into the Pacific, leaving huge deposits of stones varying in size from marbles to boulders, which were worn round and smooth as they were rolled and abraded by the action of flood waters which had transported them for hundreds of miles. Comparison

of their composition with material occurring near the source of the Colorado and its tributaries verifies this theory.

Later, geological distortions raised the coast range and the old river bed, forcing the Colorado to empty into the Gulf of California, and left the low rolling hills of river bed material, through which the major portion of the road now passes.

The La Mesa cut-off improvement was made under three separate contracts, at a total cost of approximately \$567,000 including rights of way. The contracts for grading and paving were carried out by the Griffith Company of Los Angeles and the V. R. Dennis Construction Company of San Diego.

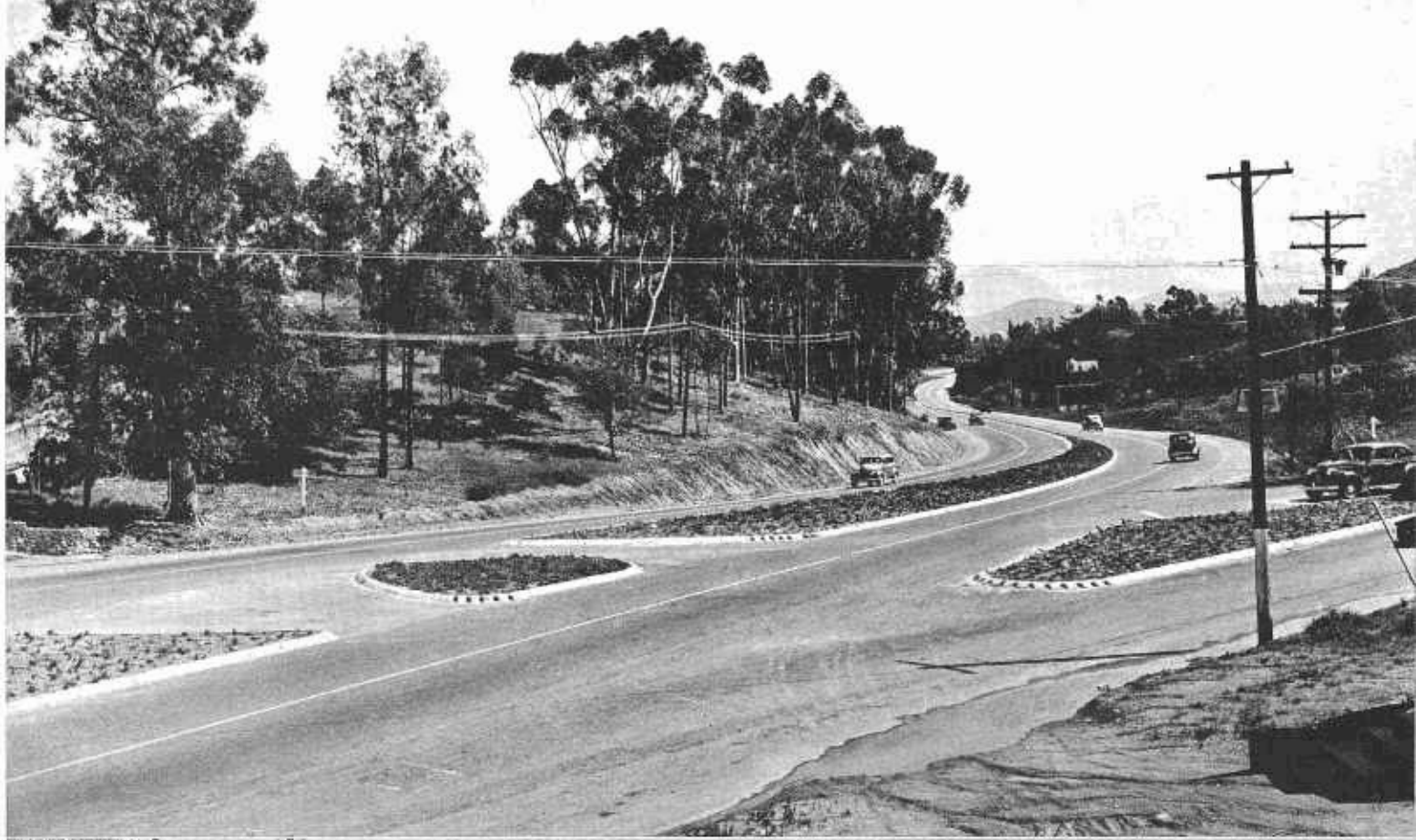
Oberg Brothers of Los Angeles constructed an overhead crossing at the San Diego and Arizona Eastern Railway tracks in La Mesa.

Approximate major quantities involved consisted of:

Roadway Excavation	465,000 cubic yards
Overhaul	4,000,000 station yards
Imported Borrow	22,000 cubic yards
P. C. C. Pavement	10,000 cubic yards
A. C. Pavement	21,000 tons

The work involved the application of practically all features of modern design, such as grade separations between railroad and highway traffic; opposing traffic separations by reflectorized curbs; rolled curbs; and by profile separations. Three separate intersection channelizations were made and sodium vapor lighting systems installed. The paving included both asphaltic concrete and portland cement concrete. Slope protection was obtained by planting of native grasses, and beautification by planting of Cocos Plumosa Palms, and Mesembryanthemum.

Motor transport and allied industries supply one-seventh of all railroad freight. Railroad use of motor trucks is rapidly expanding.



The four-lane divided highway cut-off recently completed in San Diego County between La Mesa and El Cajon includes practically all features of modern design such as grade separations, opposing traffic separations by reflectorized curbs, profile separations and channelization islands.

Realignment Eliminates Bottleneck On Sign Route 41 in Cottonwood Pass

By R. S. BADGER, District Construction Engineer

A REALIGNED section of State Sign Route 41 through the Cottonwood Pass in Kern County was opened to travel on September 2, 1941, eliminating a narrow, old road that constituted a traffic bottleneck.

The section just completed extends from the San Luis Obispo-Kern County line easterly through rolling hill pastures to the westerly edge of Sun Flower Valley. Easterly from that point the route crosses this valley and a low range of hills into the Kettleman Plains, crosses the westerly edge of the famed Kettleman Hills oil fields, thence to Kettleman City, Fresno and Yosemite Park.

As the traveler follows the tops of ridges across "the hills" he can see Tulare Lake, fed by the waters of the Kings, Kaweah, Tule, and, in some

instances, by water diverted from the Kern River.

Several years ago a section of highway had been improved to modern standards, westerly from the Kern County-San Luis Obispo County line to a junction with U. S. Route 466, just east of Cholame. The usefulness of the improvement in San Luis Obispo County had been impaired because of the section of narrow, crooked, winding road in Kern County. Many had considered "the longer way around" via Keek's Corner and Devil's Den to be "the shortest way across."

Now the bottleneck has been removed by the construction of a wide two-lane highway surfaced with a bituminous-mix surfacing and placed on pleasing grades and alignment.

To the appreciation of the improvement, expressed by the average traveler, is added that of the Army men now quartered in the cantonments on the coast roads, but whose families or interests are in the San Joaquin Valley. The Army camps have naturally caused a large increase in the use of this direct route between the valley and Paso Robles on the Coast Highway, and without doubt it will be a distinct asset to the Nation as a defense road.

On this modernized highway one glides smoothly through oak-studded, gracefully rolling hills. It is quite easy to allow the imagination to picture the Spanish Don, a-horse, surveying his rancho and cattle grazing on the hills and plains. The cattle are still there, thousands of them.



Section of new, wide two-lane highway with bituminous mix surfacing recently completed on Cholame lateral through Cottonwood Pass



View of realigned State Sign Route 41 that connects Yosemite Park and San Joaquin Valley with the coast at Cambria

No particular difficulties were encountered during construction except that for a considerable period heavy rains plus a deep clay soil, effectively stopped construction while the rains continued.

Due to the remoteness of this section it was not economically feasible, at this time, to import commercial rock for surfacing. Also there was an unusual absence of suitable select subgrade material. Therefore, the top 12 inches of the road bed was surfaced with a crushed sandstone obtained from a ledge near the middle of the contract, and which, although soft, tested with a high bearing value and provided an excellent support for the traffic.

The top two inches of this material was crushed to a slightly finer grading, and after the base was primed with SC-2, it was road-mixed with SC-3, using a road pug and motor graders. The sandstone found at this location was admitted for use as base and surfacing, as it was the only rock available without unduly high expenditures.

If found necessary in the future, it could be protected by a thin wearing surface of imported hard rock so that in any event there will be no financial loss. The project covered 4.79 miles and cost approximately \$125,410. R. Windele was Resident Engineer; Griffith Company, Los Angeles, the contractors, with John Gregg as superintendent.

August Traffic Breaks All Records On State-owned Toll Bridges

TRAFFIC on the State-owned toll bridges continued at an unusually high volume throughout the month of August, breaking all previous records on the San Francisco-Oakland Bay Bridge as well as on the Carquinez and Antioch bridges.

On the San Francisco-Oakland Bay Bridge the daily average was 58,365 vehicles, indicating an increase of about 8 per cent over the record for August, 1940. The heaviest single day's traffic occurred on August 24 when 69,024 vehicles crossed the bridge. This record has been ex-

ceeded on only six other days since the opening of the bridge.

The average daily traffic on the Carquinez Bridge was 15,748 vehicles which exceeds the record of the same month of the previous year by about 70%. The heaviest single day's traffic was 23,203 vehicles occurring on August 31.

At the Antioch Bridge the daily average of 944 vehicles showed an increase of 63% over the traffic of August, 1940.

The vehicular traffic for August on the San Francisco-Oakland Bay Bridge and the Carquinez and Antioch bridges is tabulated below:

	San Francisco-Oakland Bay Bridge	Carquinez Bridge	Antioch Bridge
Passenger autos and auto trailers.....	1,632,348	443,480	23,852
Motorcycles and tricars.....	5,242	1,290	66
Buses.....	44,673	6,053	187
Trucks and truck trailers.....	88,640	37,108	5,090
Others.....	38,426	272	60
Total vehicles.....	1,809,329	488,203	29,255

Federal park officials predict an all-time record of travel in National parks this season. A recent check showed that visitors to National parks this year have increased 17 per cent over 1940.

Meanwhile, travel records of the dam show an increase of 22,899 over figures for July of last year, and a total increase of 128,501 persons over the corresponding period in the travel year 1940.

Bids and Awards for the Month of August, 1941

INYO COUNTY—Between Cottonwood Creek and 3.3 miles north, about 3.4 miles to be graded and surfaced with plant-mixed surfacing. District IX, Route 23, Sections J.K. Oswald Bros., Los Angeles, \$96,733; A. S. Vinnell Co., Alhambra, \$96,741. Contract awarded to Basich Bros., Torrance, \$91,740.

KERN AND INYO COUNTIES—Between Freeman and Haiwee, 14.1 miles, applying seal coat on portions. District IX, Route 23, Sections E.H. A. S. Vinnell Co., Alhambra, \$13,423. Contract awarded to Basich Bros., Torrance, \$11,341.

LASSEN COUNTY—At Fredouyer Summit, about 0.2 mile slide area to be established. District II, Route 29, Section B. Scheumann & Johnson, Eureka, \$34,784. Contract awarded to Poulos & McEwen, Sacramento, \$32,085.

SANTA CLARA COUNTY—Between 2.1 and 5.5 miles east of Gilroy, about 2.6 miles to be surfaced with gravel base and armor coat. District IV, Route 32, Section A. Contract awarded to Piazza and Huntley, San Jose, \$18,412.

SOLANO AND NAPA COUNTIES—Between 0.6 mile and 2.3 miles north of Route 208, about 1.7 miles to be graded and surfaced with Portland cement concrete and asphalt concrete. District X, Route 7, Sections G.A. Contract awarded to Henfey-Moore Co. & Fredrickson & Watson Construction Co., Oakland, \$128,157.

SONOMA COUNTY—Between Sheephouse Creek and Duncan Mills, about 2.7 miles to be surfaced with gravel base and armor coat. District IV, Route 104, Section A. Helwig Construction Co., Sebastopol, \$15,614; E. A. Forde, San Anselmo, \$18,637. Contract awarded to Sheldon Oil Co., Suisun, \$13,745.

YUBA AND BUTTE COUNTIES—Between Linda Corners and "D" Street Bridge and between 1.9 miles north of Yuba County line and Union School, about 8.4 miles to be surfaced with plant-mixed surfacing. District III, Routes 3, 87, Sections B.A. Hemstreet & Bell, Marysville, \$13,524. Contract awarded to Union Paving Co., San Francisco, \$12,725.

YUBA COUNTY—Between Marysville and Hallwood, about 2.3 miles to be surfaced with crusher run base and seal coat applied. District III, Route 15, Section A. Contract awarded to Hemstreet and Bell, Marysville, \$16,772.

Jenner Jetty Defies Ocean's Storms

(Continued from page 17)

veys, supervision and inspection costs amounted to \$5,782. The remainder of the \$65,550 fund provided for construction was used in building timber pile crest wall extending a distance of 1,200 feet landward from the rock and concrete section, and other preparatory work.

State engineers who designed the jetty and supervised its construction included State Engineer Edward Hyatt, the late Deputy State Engi-

Ex Commissioner and Editor Sends His Compliments

VISALIA TIMES-DELTA
Visalia, California

Editor
California Highways and Public Works
Department of Public Works
P. O. Box 1499
Sacramento, California

Dear Mr. Howe:

As a former member of the California Highway Commission I want to compliment you on the excellent publication which is now being put out by the Department of Public Works under your direction. I look it over and read some of the articles in each issue with interest, for although State highway work is on a very much larger scale than it was in my day, I have never gotten over my interest in better highways in California. * * *

Naturally the Central Valley Water Project is very close to the hearts of the people down this way. I was present at the organization meeting of the first association created in California to raise money to exploit the Marshall plan, which was the forerunner of the Central Valley Water Project.

I assure you if there is anything we can do to assist your organization in any way with publicity of importance to highway and water development in this section of the State you will find us ever ready to cooperate.

Fraternally yours,
CHAS. A. WHITMORE,
Editor.

neer R. L. Jones, and G. H. Jones, Supervising Hydraulic Engineer. The detailed plans were prepared by Van G. Horton and Max Bookman.

In charge of construction supervision for the State during the contract period were W. G. Schulz, P. E. Stephenson, F. M. Huson and C. O. Schellenger.

\$4,000,000 Defense Highway Project

(Continued from page 8)

Elysian Park is being developed, recreational areas are being created, and Los Angeles' most beautiful park will be made more accessible and usable to all of its citizens. This splendid public achievement has been made possible by the very fine spirit of co-operation, which has been enjoyed for the past years, between the State Engineers, the Highway Commission, Director of Public Works Frank W. Clark and city officials of Los Angeles, especially with the Board of Park Commissioners, of which Mrs. Fred Watson is president, and with the Works Progress Administration represented by Mr. Russell Amory, Administrator, and his Chief Deputy, Mr. Ray Spencer.

The cost of the project is divided between State Gasoline Tax Funds, money supplied by the Works Progress Administration and the City of Los Angeles. The total cost will be greater than originally contemplated, due to rising prices of materials, equipment and labor. The probable total will be in the neighborhood of \$4,000,000.

Of this amount, \$1,800,000 will be provided by the State, \$1,900,000 by WPA, and \$175,000 by the City of Los Angeles, as cosponsor. The estimate includes cost of right of way, parks and engineering.

Importance of Flatter Cut Slopes

(Continued from page 15)

irregularities which are so valuable in their retention of the topsoil. Pulverizing and moistening the topsoil aids materially in placing and retaining it on the slope.

6. If seeding is considered necessary it should be done immediately upon completion of the topsoil blanket before rain or heavy dew can form a crust upon which the seed cannot be retained.

If it is impossible to obtain sufficient topsoil in this manner, imported topsoil must be used. If topsoil is not available humus material in the form of straw or manure may be worked into the slope surface.

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